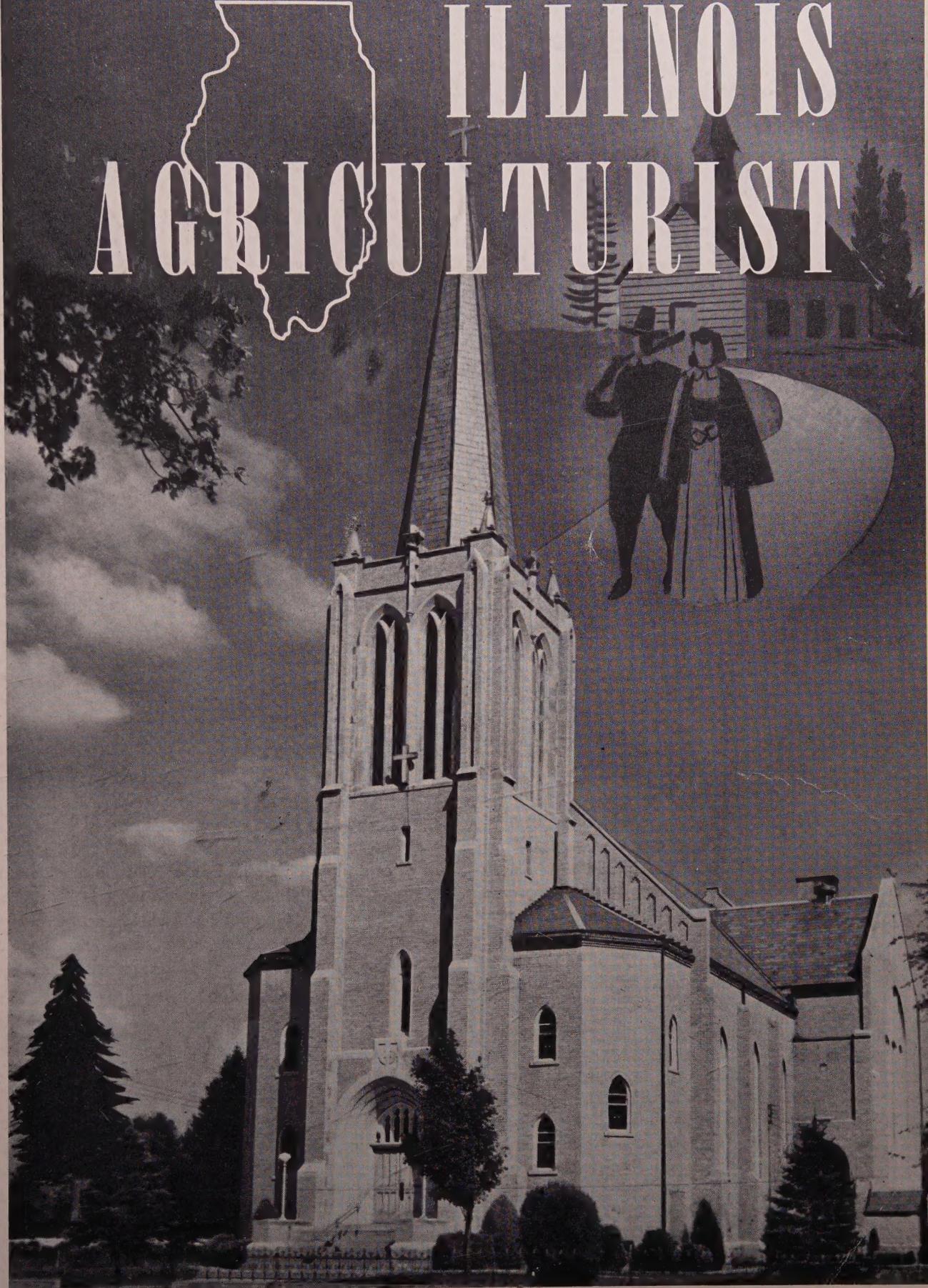


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Fifty-Fourth Year

NOVEMBER, 1949

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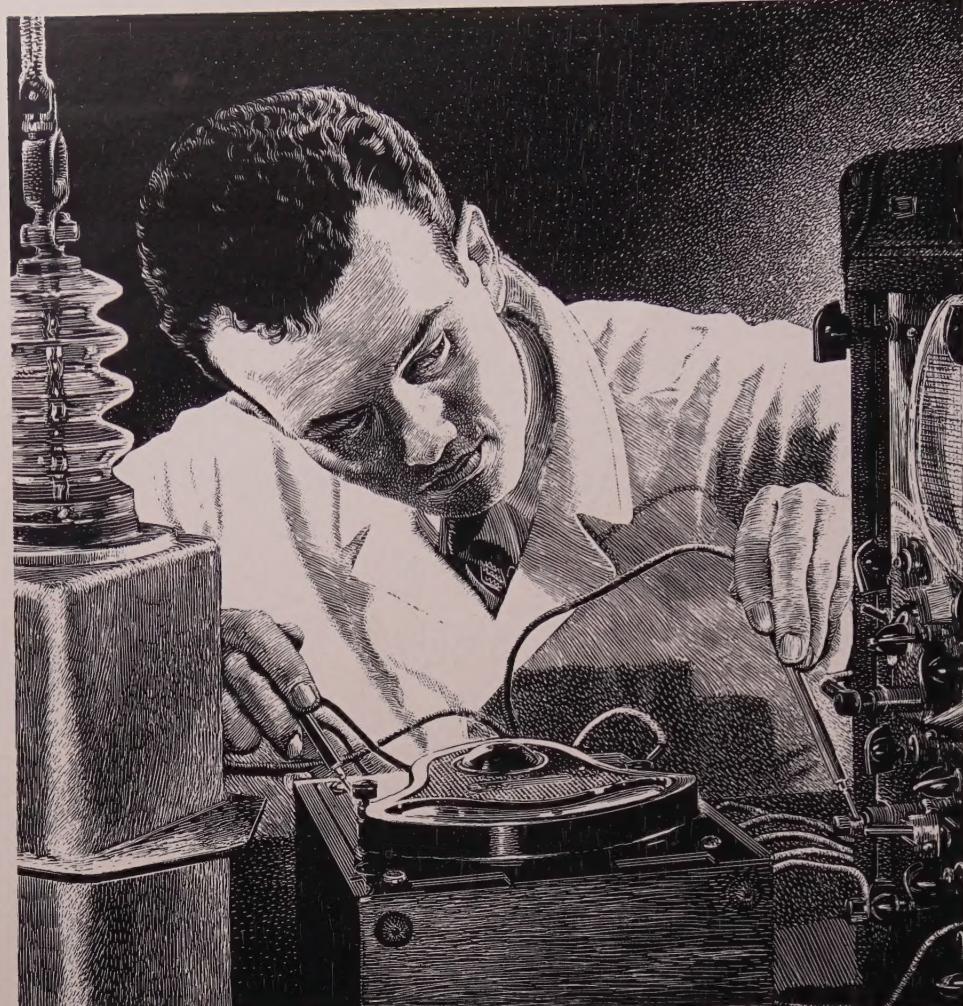
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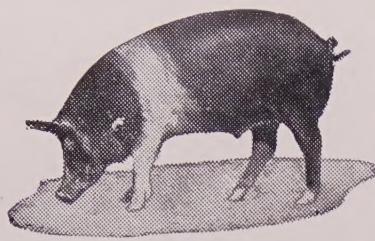
Peace of mind and pride of accomplishment are the common properties of Standard Oil employees. That is why so many of them stay with us through the years. Their long service is an endorsement of Standard Oil, for in this country an employee is free to choose his employer.

A company that is chosen by many people as a good place to stay is also a good place to start.

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GRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS
OF MARCH 3, 1933, AND JULY 12, 1946.

Of The Illinois Agriculturist published six times during the year
(October, November, December, February, March and May) at Urbana, Illinois for October 1, 1949.

State of Illinois }
County of Champaign } ss.

Before me, a notary public in and for the State and County aforesaid, personally appeared Norman P. Vogen, who, having been duly sworn according to law, deposes and says that he is the business manager of The Illinois Agriculturist, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management and the circulation, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Illini Publishing Company, 725 South Wright Street, Champaign, Illinois;

Editor, Russell O. Lewey, Champaign, Illinois.

Business Manager, Norman P. Vogen, Champaign, Illinois.

2. That the owner is the Illini Publishing Company, a non-profit corporation, whose president is C. A. Moyer of Urbana, Illinois, and whose secretary is Manning D. Seil of Champaign, Illinois.

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NORMAN P. VOGEN, Business Manager.

Sworn to and subscribed before me this 13th day of October, 1949.
(SEAL)

MARGARET E. CAIN, Notary Public.

THE ILLINOIS AGRICULTURIST

ESTABLISHED 1896

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Volume LIV NOVEMBER, 1949 Number 2

Published six times yearly by students in Agriculture and Home Economics at the University of Illinois

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OUR PLATFORM

To acquaint students and faculty in the College of Agriculture, agricultural leaders, and the rural people of Illinois with the latest scientific developments in agriculture and home economics.

To report events of general interest on the College of Agriculture campus.

To serve as a means of training agricultural and home economics students in journalism and business administration.

To promote the best interests of agricultural and home economics students on the campus of the University of Illinois.

Going Forward . . .

"By our fruits we shall be known." Will your fruit be the desirable kind, the product that the world wants or is there a slight chance for shrivelling, for a spot of decay, or even immaturity?

No matter who we are or what we're doing, it is well to stop and think about this. David Meeker, educational director of Dearborn Motors Inc., in his report to the Association of Land Grant Colleges and Universities, says that the young people coming off the so-called "college assembly lines" of today have four shortcomings.

"First," says Meeker, "they are not fully trained in reasoning ability. Even though they are stuffed with knowledge, they do not have the ability to arrive at logical conclusions. Second, it is difficult for some people to express their ideas by writing or speaking. In such a condition, the individual's ideas are under lock and key." His third and fourth points criticize the lack of willingness of the person to start at the bottom and work up to his desired job and the inability to live in this complex society that exists today.

By taking heed of Mr. Meeker's discussion of the four shortcomings, a person should be startled to the realization that in many cases he is not taking advantage of all the educational facilities that exist within his grasp. On the campus the Ag club, speech groups, student publications, judging teams, and social committees offer prime sources of supplemental training to students for integrating their more formal, technical information.

Other opportunities for people in farm communities to broaden their horizons may be found in the 4-H clubs, Rural Youth, Farm Bureau, Grange, and various other neighborhood social groups. Everybody can't be president of a group but committees are numerous enough to include everyone. And the more responsible position a person obtains, the more will be his benefits as well as rendering a service to the organization.

Why are people slow to take advantage of some of the activities which are provided for their own personal development? At the recent All-Ag Field Day approximately 300 Ag and Home Ec students came out for the evening of wholesome fun and frolic. Agriculture College enrollment stands at the 1,625 mark.

What does this have to do with David Meeker's report that I first cited? Every constructive experience helps to integrate, to basically solidify our present knowledge into a deep-rooted foundation. With this indestructible foundation each individual can become an asset to the society in which he lives.

OUR COVER: With November comes Thanksgiving. People all over the country will flock to their churches to give thanks, displaying the freedom which the Pilgrims gave to this country. The Immanuel Lutheran Church, Flatville, Illinois, is one of the prime examples of what our forefathers visioned in their journey to this new land in search of "freedom of religion." Known as Champaign County's "Cathedral in the Cornfield" this church is the largest rural Protestant church in the United States.



The community church with its resident pastor is very important in creating good farm family living

Is Your Rural Church the Center Point of Community Interest?

By Joe Matthews

Rural churches play a major role in community development, but congregations are decreasing in size. In the following story, Joe Matthews, rural sociology editor, after considerable research, has written his views on this important problem.

The rural churches of Illinois are as old as the first settlements. Churches were built even before schools were erected. The first settlers brought their religion with them, and wherever they stopped long enough a church was built.

The number of rural churches in the state of Illinois has remained, on the whole constant, while the rural population has declined. In recent years the rate of decline of rural population has been even more rapid due to the increased amount of mechanization that has taken place on the farms and in the rural areas as a whole.

The mechanization which has taken place on the farm has reduced the amount of time needed for its operation. The result has been that farmers have more leisure time than was formerly possible.

What to do with this extra time is not a question rural people ask themselves. Instead they will go to town for the company of their neighbors and friends. If that company isn't enough they will go

to a larger town where more variety in entertainment may be had, usually movies and taverns.

Some leisure time should be used to improve the rural churches. Improvement of rural churches is important to rural areas and the country as a whole, if our nation is to be a better place in which to live. What can be done to again make the rural church a living focal point for the rural farm families?

Need for Better Ministers

One very pressing need for rural churches is better leadership. The various denominations need to train ministers to serve in rural churches. The practice is and has been to send either young ministers just out of theological school, or ministers ready to retire to rural churches. The few years that these men have to lead these churches is not long enough to get a well integrated program started and established.

Higher salaries will have to be paid by rural congregations in order to attract and keep good ministers, but where

will the money come from? Perhaps urban churches should be made, in part, financially responsible for rural churches, because many rural young people will eventually migrate to urban areas. One church in our own state, in order to be financially able to carry out an improved program, has rented a farm from which all proceeds go into the church treasury.

Some rural churches have what is known as "God's acre," the proceeds of which go into the church treasury. There are many more ideas used by rural congregations to finance improved programs.

Variety of Programs Help

Programs involving the whole family will need to be instituted so that each family may be able to share in the religious experience.

Programs dealing with spiritual and moral problems should be formulated, and a dash of social recreation mixed in. A distinct line should be drawn between the spiritual and recreational programs in order that the real purpose of the program is not lost.

A new method by which rural churches are improving their religious programs is through affiliation. When individual churches affiliate they do not lose their individuality, but pool their resources for better religious programs.

Usually a long period of time is needed to educate the respective congregations to the fact that such a program is an improvement. Nevertheless more work is being done along this line.

A number of affiliations have taken place in the United States, but only after several years of cooperation and work among the denominations who formed the affiliation. The question might now be asked, Why haven't such programs been instituted before? Perhaps it is because rural churches have fallen out of step with our changing times.

Must Change With Times

Our tremendous technical changes have created new social problems with which our rural churches have not kept pace. The rural church is slow in making necessary changes, and in the meantime losing a great opportunity to be of service to men.

It used to be that rural people felt a need for a touch of "fire and brimstone" in their religion. Today we find that people, especially young people, don't care for that sort of religion, but want a religion that will help them to face today's world.

Two ways of looking at life and the world might be these: Man as an individual spends a relatively short time on earth and is prone to over-emphasize the troubles of his time. The other way of looking at life is for the individual man to look at the history of himself as a whole. If man looks at the history of himself as a whole he cannot but help being impressed at the accomplishments he has made and can make in the future.

Pasture Strip Lands for Profit

By Archie Harper

The first time you saw the man-made mountains of earth left where land had been stripped for coal, you may have exclaimed, "That land is completely worthless—an eyesore in any community!" If so, you were not alone in your reaction.

But a few forward looking individuals have thought this seemingly worthless land good for something; so, now a series of experiments on this land is going on in different parts of Illinois. The departments of agronomy, animal science, and forestry, with the Illinois Coal Strippers Association and the U. S. Forest Service cooperating, began in February, 1947, to see if they could find a profitable use for these areas.

Beginning with the idea that this land's best use would be for grazing, experimental plots of legumes and grasses were seeded. Plots were laid out over the ridges and through the depressions of this rough land, and different legumes and grasses seeded, both alone and in many combinations. By seeding strips of grasses in one direction, and crossing the strips with seedlings of legumes in the other direction, 64 different mixtures, each one-twentieth acre in size, were obtained. The legumes and grasses were also seeded separately along one side of these plots. In these first plots the legumes used were alfalfa, alsike clover, birdsfoot trefoil, ladino clover, red clover, korean lespezeza, and yellow or white blossom sweet clover, plus a mixture of seven legumes. The grasses seeded were ryegrass, bromegrass, reedtop, reed canary grass,

timothy, fescues, Kentucky or Canada bluegrass, and orchard grass.

Much other work has been done since the experiment began, and work is still in progress. Many soil samples have been taken and analyzed. Though there are some highly acid spots, most of the spoil bank soils have a reaction favorable for the growth of legumes, and have sufficient phosphorus and potassium for satisfactory growth of forage plants. The great lack is of nitrogen, which the inoculated legumes quickly add.

To date, the legumes that have grown best are alfalfa, sweet clover, lespezeza, yellow trefoil, birdsfoot trefoil, medium and mammoth red clover, and alsike clover. Of the grasses, orchard grass, ryegrass, the fescues, red top, timothy, Kentucky and Canada bluegrass, and bromegrass have been most successfully established.

Besides the forage crop studies, wheat, rye, and corn have been seeded on areas that have been leveled, and fertilizers are being tried.

Satisfactory Cattle Gains

Experiments to determine the gains that could be made by cattle on strip land pastures were begun in 1948 in both western and southern Illinois. In each area twenty medium grade steers were run on spoil bank pastures, and twenty others were grazed on blue grass and grass-legume pastures as a check. The steers were pastured for 163 days, then fed out in the feedlot for 45 days on broken ear corn and clover hay. During the 163 days on pasture the lot on

spoils pasture in western Illinois (Fulton county) gained an average of 1.19 pounds a day as against 1.29 pounds per day by the check group pastured on good bluegrass pasture. Those on spoil pasture in southern Illinois (Perry county) gained 1.07 pounds per day as against 1.23 pounds for their check group pastured on improved grass legume pasture at the Dixon Springs Experiment Station.

All there is to know has not yet been learned of the striplands of Illinois. Experiments are continuing, forage produced is being analyzed, response to fertilizer is being studied. Leveled areas, and areas in which the tops of the ridges have been "struck off" with a bulldozer, and totally unleveled areas are being compared. Different mixtures of grasses and legumes are still being tried in an attempt to find the very best mixtures, and grazing experiments continue.

When the experiments have been concluded, this land that was at first useless will no longer be so if the knowledge gained is intelligently applied. Let's keep our eyes on the striplands. It looks from here like they'll produce just as much beef per acre as most of our Illinois pasture land. They'll no longer be eyesores in communities where stripping goes on if the surface soon becomes covered with grasses, legumes, and cattle.

Veterinary College Awarded \$5,000 Grant

The College of Veterinary Medicine was granted \$5,000 by the Illinois Farm Bureau Serum association. The grant is being used in a new two-way attack on swine brucellosis, which got under way September 1.

The experiments are being made through the Illinois Agricultural Experiment station of the College of Agriculture, which are directed toward prevention through vaccination, or cure, through the use of chemicals or antibiotics. The third phase of the plan is in the form of special service to herd owners, upon request, in the diagnosis and study of any unusual swine diseases that arise. The available funds will determine the extent of this latter phase.

Russell V. McKee, president of the state-wide serum association, stated that further grants are expected to be made over a period of the next few years. McKee pointed out that swine brucellosis costs Illinois farmers several million dollars annually and is also a common source of brucellosis, or undulant fever, in humans. A recent study by the department of public health in Iowa showed 70 per cent of the undulant fever in that state was spread by infected swine.

(Continued on Page 16)



These are some steers which are making good gains on spoil bank pasture in Fulton County



Old Lab: inadequate and inconvenient — poor lighting — little work and storage space — one sink for several girls

New Lab: (At Left) designed for efficiency — newest equipment — excellent lighting — interesting colors

Modern Foods Lab Makes Debut

By Carol Harrison

Kitchens without garbage cans on the floor or not draped with dishtowels are not as fantastic as they may seem. Such kitchens actually do exist; some excellent examples are located in Room 229 of Bevier Hall. Both students and faculty have shown great interest in the recent remodeling of a foods laboratory located here. The project which began a year ago was opened for student use this fall.

The aim of the home economics department was to provide food preparation laboratories where students work in situations similar to those encountered by the modern housewife. Instead of working side-by-side at a long counter, as in chemistry or physiology labs, students use individual "kitchenettes" built at right angles to the wall. In these kitchen units foods are prepared and served as in any modern home. The arrangement calls for no sacrifice of space; the new laboratory may accommodate as many as sixteen or eighteen students in one class.

Wedgewood Blue Walls

The room is made as bright as daylight by twelve overhead fluorescent lights. Smaller fluorescent lights are placed under the wall cabinets to give extra illumination to the working areas. The walls of the laboratory are painted wedgewood blue to make a striking contrast against the dark red counter tops. The floor is covered with black and white marbleized linoleum. The home-

like atmosphere is preserved even to the extent of potted plants on corner shelves.

Let's examine one of the seven individual "kitchenettes" more closely. One of the first things that you will notice is the modern double sink that has replaced the antiquated dishpan. A chrome-plated swinging faucet and a spray attachment for rinsing dishes are up-to-the-minute additions. An electric dishwasher helps eliminate that "dishpan-hands-look" common to so many home ec students.

Hidden Garbage Can

Concealed under the sink is a sliding towel rack, where the dishtowels and cloths are discretely hidden while they dry. Also located under the sink is the garbage can. It is attached to the cupboard door and swings into view only when the door is opened.

Each unit has a cutting board that pulls out from under the counter at a moment's notice. The partitioned drawers and sliding shelves make the selection of utensils quick and easy. Because it is simple to keep clean, "Linowall," a flexible linoleum substance, lines part of the storage shelves and drawers.

Either an electric or a gas range is part of each unit. At one side of the range is a stainless-steel counter top on which hot dishes may be placed. Within reaching distance of the stove is a smoothly finished oak table and matching set of chairs. Six or more persons may be seated at the table. It provides

a place for students to plan menus, to serve the meals they prepare, or even to study.

The home economics department has a variety of linens, china, silver, and glassware. Students have an opportunity to use originality in combining them.

Demonstration Mirror

Instructors have long recognized demonstrations to be an important method of teaching; that is one reason why plans for the new laboratory were arranged to allow facilities for class demonstrations. At one end of the lab is a large demonstration table that is close to sink, a gas range, a family-size deep freeze unit, and an eleven-foot refrigerator. A large demonstration mirror, soon to be obtained, will make the center complete. Fifty or sixty persons can be seated in front of the demonstration counter.

It would be difficult to describe all the time and labor saving equipment found in the new laboratory. Some of the conveniences were placed in the lab to allow students to judge the efficiency and adaptability; the staff realizes that equipment and methods are proven superior only when they are tested by practical usage.

Some other modern items found in the laboratory include: step-up shelves for storage of spices, special racks which allow vertical storage, electrical garbage disposal unit, and two "lazy-susan" corner cupboards. One outstanding convenience

(Continued on Page 15)

Meet Our New . . .

Home Ec Head

Dr. Janice M. Smith, professor of nutrition, is now acting head of the department of home economics of the University of Illinois College of Agriculture.

She replaces Mrs. Kathryn VanAken Burns, who wishes to devote full time to her position as state leader of home advisers. She has been acting head for the past year following the resignation of Professor Lita Bane.

Dr. Smith has been director of foods and nutrition work here since 1944. Dur-

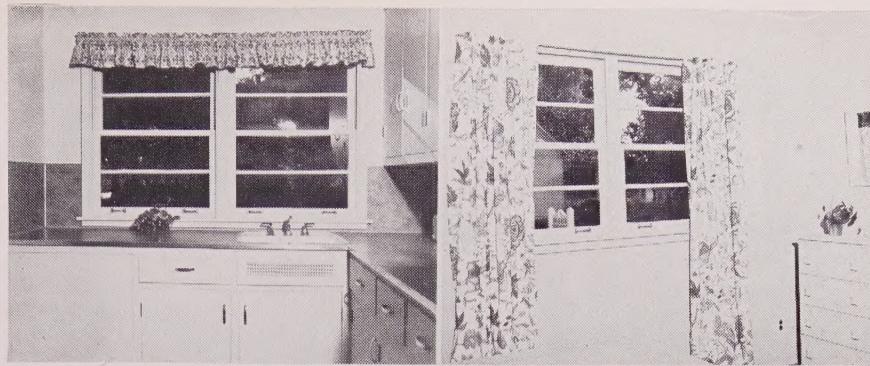


ing the past year she directed all home economics research and graduate teaching.

She is a graduate of the University, receiving her doctorate in biochemistry. After being associate professor of home economics research at Pennsylvania State College, she was nutritionist for the Civilian Food Requirements Branch of the War Food Administration in 1943.

The following year Dr. Smith became professor of nutrition and director of nutritional work here at the University. Soon after her arrival she established the diet house, which serves as a home for the students who are research subjects. It is the only one of its kind in any land-grant college, and one of the few in the United States.

Research conducted by Dr. Smith has dealt almost entirely with nutritive requirements of human subjects. She worked with the "Calcium Kids," a study to determine calcium needs for rapidly growing teen-agers. She also administered research on protein requirements of adults, effect of cooking procedures on foods, freezing as a method of food preservation, and the desirability of varieties of fruits and vegetables for cooking and freezing.



Kitchen and bedroom furnishings of the warm air heating research house are comparable in utility and features of houses furnished on more expensive scales

\$1,000 Can Do It!

By Barbara Thiebaud

Could you furnish a four-room house with a thousand dollars? No? You should be in the home decoration classes! The students under the direction of their instructor, Miss Kathryn Weesner, have taken as their first project, the furnishing of a little house on Hill and Lincoln in Urbana.

W. H. Kapple of Small Homes Council designed this house as a "research residence" for the mechanical engineers. It is being financed by the National Warm Air Heating and Air conditioning Association. Four warm air heating units have been installed. As each is used, the temperature in all parts of the house will be recorded. The main object is "to compare the comfort produced by each system and the cost of producing that comfort."

A coral door accents the grey exterior. These colors are carried throughout the house. One living room wall and the hall are coral with the smaller bedroom a coral tint. The other bedroom is "greige," a new color term for a combination grey and beige. The kitchen is a greyed yellow-green and the living room is greyed green.

Because of the limited budget, the basic furniture must be economical, but at the same time serviceable and practical. Misses Weesner, Mary Jane Rice, and Margaret Reed, instructors, purchased some furniture and borrowed the rest so that the house would be ready for the recent press review.

Out of this thousand dollars the trio bought a refrigerator and other permanent furnishings. As a further means of saving money they finished unpainted furniture. Instead of buying an expensive head board, foot board, or costly mirrors and dressing tables, the money was used for good springs, mattresses, and unfinished chests. The sectional sofa is another example of economy. The pieces are made of durable materials but of an inexpensive type of construction.

It is the students' project to replace the furnishings borrowed, such as draperies, lamps, and spreads, using the remainder of the thousand dollars to the best advantage. At the same time they will apply principles learned in home decoration.

Father . . .

Carves the Duck

*We all look on with anxious eyes
When father carves the duck
And mother almost always sighs
When father carves the duck.
Then all of us prepare to rise
And hold our bibs before our eyes
And be prepared for some surprise,
When father carves the duck.*

*He braces up and grabs a fork,
Whene'er he carves the duck,
And won't allow a soul to talk
Until he's carved the duck.
The fork is jabbed into its sides,
Against the breast the knife he slides,
While every careful person hides
From flying chips of duck.*

*The platter's always sure to slip
When father carves the duck.
And how he makes the dishes skip!
Potatoes fly amuck!
The squash and cabbage leap in space,
We get some gravy in our face,
And father mutters Hindu grace,
Whene'er he carves the duck.*

*We all have learned to walk around
The dining room and pluck
From off the windowsills and walls
Our share of father's duck,
While father growls and blows and
jaws
And swears the knife is full of flaws,
And mother jeers at him because
He cannot carve the duck.*

A Little "Fezzant" Talk

By Ken Goodrich

Just as November finds the college student sneaking home for a weekend with his gun and dog, so will many a farmer let his corn-picker stand idle for a try at the pheasant. And, if you got your limit last year, you should do a repeat performance this year, for the game situation in Illinois is about the same. As everyone knows, this situation exists for one reason, because the matings of pheasants in the field and the release of birds from hatcheries have equaled or surpassed last year's kill.

The pheasant, of course, is not a native game bird, but got its start in the past 30 years from the work of hundreds of state conservation department hatcheries. The pheasant population has grown over the past decade, but the ideal situation would exist if there were no longer a need for hatcheries and the birds could replenish their losses naturally. Surprisingly enough, the hunter and the farmer can do much toward that end.

Hunters Can Do Their Part

The hunter's role is primarily observing codes set up by good hunters like himself. He should be positive he's aiming at a cock pheasant before he pulls the trigger. He should remember that it takes from two to three hens to produce the daily bag of pheasants, according to Paul J. Moore of the Illinois State Natural History Survey. It is very evident that those hens are valuable for next year's supply of game birds. A good

hunting dog, besides being a fine companion in the field, can do his share toward conserving the pheasant crop. According to Ralph E. Yeatter, game specialist at the University, in 1946, hunters without dogs in two northern Illinois areas allowed over 21 per cent of the pheasants they shot to get away as cripples. A good hunting dog could have cut this figure in half. Incidentally, these crippled birds have small chance of surviving in their weakened condition, as any hunter who has seen the work of foxes and wild dogs will testify.

Good Game Cover Is Essential

The interested farmer can play a very important role in increasing our wild game supply. The pheasant, though a hardy bird, will need help as will the quail or cottontail rabbit to increase in any significant numbers. The Wildlife Management Institute in Washington, D. C., estimates that 80 per cent of the small game we hunt comes from farmland, and misuse of that land is detrimental to both the game and the farmer. Wise use, and a little thought about wildlife management can benefit the farmer and insure he and his friends a lot of pleasure when the hunting season opens.

This isn't to suggest that the farmer completely change his system of farming. In fact, he may be doing a good part of the job already. For instance, most farmers use a crop rotation; the hay and small grain furnish both cover and win-

ter food for the pheasant and his neighbors.

There are a few improvements, however, that he may not have thought of. The woodlot could be lined with multi flora rose or a similar shrub, with benefit to both the timber and the pheasant. Seeding gullies with grass will also furnish cover and food for game and at the same time stop erosion. Multiflora rose can again play a part if used as a living fence, or, if a good wire fence is in use, the practice of burning fence rows should be discontinued if there's to be a nesting place for the hen pheasant next spring. And then, there's always that rockpile that could be fenced off from grazing or that brushpile that could be left over winter—it won't hurt a thing, but it will furnish a fine shelter for that cock pheasant you'll be hunting.

Eggs Now Used In Newcastle Test

By Russell Schnepper

A new way of testing poultry flocks for Newcastle disease is available to Illinois hatcherymen and poultry flock owners, announces Dr. Robert Graham, dean of the University's college of veterinary medicine.

The new test for Newcastle disease, which uses eggs instead of the usual blood samples, was developed at the college's veterinary research center by S. C. Schmittie, University veterinary. This work was conducted in cooperation with the U. S. Department of Agriculture's research on Newcastle disease diagnosis and prevention.

Dr. Schmittie said, "In field work, we tested from six to ten eggs from each of 410 Illinois flocks, and the egg test was 97 per cent accurate when compared with the results of the blood test."

The egg test is made on the yolk of the egg. Two chemicals, thylene dichloride and ether are used to dissolve out the fat. The water soluble portion that remains is used for the test in place of the blood in the blood serum hemagglutination inhibition test.

This egg test is also used to determine whether vaccination of laying flocks against Newcastle was effective and to help hatcherymen screen out previously infected breeding flocks.

Dr. Schmittie says that the egg test cannot be used when a poultry flock is going through an outbreak of Newcastle disease. Affected birds stop laying and do not resume production until they have recovered.

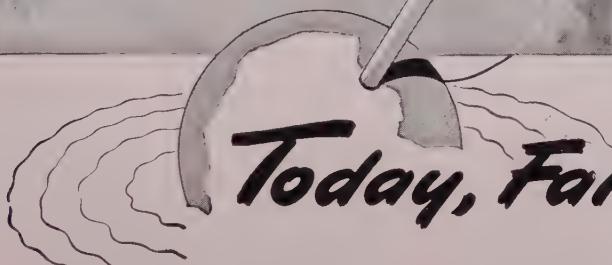
If you want your breeding flock tested for Newcastle, send six to ten freshly gathered eggs to the University of Illinois College of Veterinary Medicine, Urbana. Be sure to pack them carefully.



The pleasant reward of game conservation



Today, Farming's more fun!



Farming has changed a lot since the old days. Grandpa was up before the sun and finished his day chores by the flickering light of a smoky kerosene lantern. Long hours and spirit-dulling drudgery were as much a part of farming as his blue denim overalls.

Today, modern power equipment has multiplied the farmers' productivity and taken over much of the muscle work that used to sentence farm families to a lifetime of hard labor. Our farm scientists have developed improved crop varieties and given us better controls for pests and diseases. Crop rotation, soil conservation, and other modern practices

help to make the words "America" and "abundance" synonymous.

These modern advancements have not only skyrocketed farm income, but have given farmers more time and energy to enjoy it. Nowadays, there is often time for a little fishing after the chores are done. Farm families spend more hours together, play a bigger part in community activities, and enjoy vacations just like their city cousins.

Yes, farming has become an even more important and challenging occupation than it was in the old days—and a lot more fun!

J O H N D E E R E
MOLINE • ILLINOIS



Planting Rate, Soil Nitrogen Affect Corn Protein Content

By Glyndon Stuff

When the dark colored prairie soils of the corn belt were broken out of the sod, they contained what appeared to be inexhaustable supplies of organic matter and nitrogen. This supply has lasted a great many years as well as the supplies of other plant nutrient materials, but they have been rapidly depleted, particularly during the past several years.

Approximately 50 years ago a few University of Illinois scientists realized that soil organic matter would diminish unless farming practices could be found that would maintain the organic matter at a fairly high level.

Morrow Plots

Professor Morrow designed the Morrow Plots in 1876 to measure the effect of three cropping systems on organic matter content and productivity of the soil. These cropping systems were con-

tinuous corn; corn and oats; and corn, oats, and red clover.

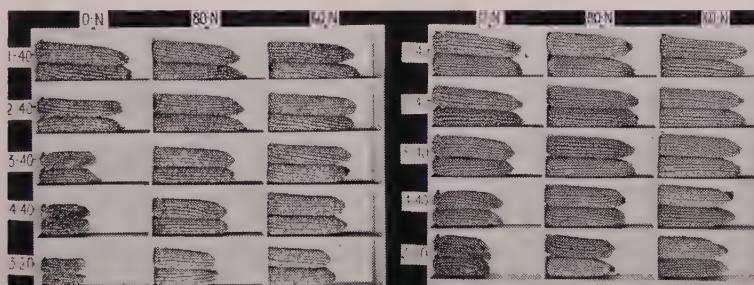
open pollinated varieties to hybrids, and consequently it has been assumed that the decline was due to inherently low protein hybrids. There are no experimental data at the present time to substantiate this assumption.

Yield and Protein Correlate

For the past few years commercial feed manufacturers have been receiving low protein corn. Many believe this is due to the fact that farmers are increasing the rate of planting so as to be benefited by a high average yield. As an answer to this problem experts tell us that the protein will be reduced in the grain from the thicker rates of planting, because of the fact that more grain produced on the same amount of nitrogen will contain a lower per cent of nitrogen.

Detail Study Started

In 1944, E. E. DeTurk, chief of the division of soil fertility of the agronomy



High protein hybrids (left) and G94 (right) showing average length of ears when affected by nitrogen applications in hills twenty and forty inches apart and forty inches between rows

tinuous corn; corn and oats; and corn, oats, and red clover.

Beginning in 1904 half of each plot received limestone, manure, and phosphate. The sampling of the soil from each plot was begun and continued at ten year intervals. Through the years the best cropping system has not maintained the organic matter at the original level, although it is responsible for the smallest decrease, the highest corn yield, and the highest protein content in the kernels.

Under the different cropping systems of the Morrow Plots a direct relationship resulting between the yield of corn and the protein concentration in the grain. That is, when the percentage of protein in the kernels is low, the yield is low; and when the percentage of protein is high, the yield is high. The loss of both yields and protein concentration in the grain accompanied the diminishing soil nitrogen.

The decline in corn protein has more or less paralleled the change-over from

department, set up a research program in greater detail on the relationship of soil nitrogen and the rate of planting to the protein and yield of corn.

E. B. Earley, assistant professor of soil fertility of the University, was put in charge of this project which is jointly supported by the Funk Brothers Seed Company, Bloomington, and the Corn Industries Research Foundation. Several hybrids were used in this investigation with four nitrogen levels—no nitrogen, 40 pounds per acre, 80 pounds per acre, and 160 pounds per acre. Six different rates of planting were used—one to six plants per hill at the four different locations in the central part of Illinois.

In all the research experiments carried on with the several hybrids, none have been found that would be classified as genetically low protein hybrids. It is true that some hybrids are somewhat lower than others in per cent protein under supposedly similar soil conditions, but the difference is not believed to be that of genetics.

When the yield of open pollinated varieties are about the same, the difference in the protein content of the grain is small. When the hybrids yielded considerably more, the open pollinated varieties contained a higher concentration of protein. In a situation of this kind, hybrids produce more protein per acre than the open-pollinates.

Two Factors Affect Protein

The results from the field experiments indicate that there are two principal agronomic factors which influence the protein content of the corn grain; namely, rate of planting and the supply of soil nitrogen.

Data from the Clinton field, which was the highest yielding in 1947, show that as the rate of planting increased from one to three plants per hill the yield increased; but for the four, five, and six plants per hill, yield remained about the same. The percentage of protein in the kernels decreased from the lowest to the highest rate of planting on each level of soil nitrogen. This decrease was rather sharp on the non-nitrogen plots, but becomes smaller with the increasing rates of nitrogen application.

The results of this experiment cannot be considered highly satisfactory even though the corn followed red clover. The season was definitely unfavorable for high corn yields and the response to nitrogen treatments was not good.

In 1948 under more favorable conditions for corn, the 1947 experiment was carried on in its essential features. Four locations—Havana, Stonington, Clinton, and Urbana—were used on the farms of four farmers in those localities. Data from the Urbana field have been completed in which Funk's G-94 and the three way cross (11 x 35) 73, which averaged about 15 per cent protein, were used.

Soil from the Urbana field was in a state of relatively low fertility. The only fertilizer treatment that this field has ever received was an application of limestone in 1947. The experiment followed two years of mixed pasture and mostly timothy.

On each of the four nitrogen levels, the per cent protein of the grain decreased with the increasing rate of planting; the per cent protein is inversely related to yield under this condition.

Nitrogen Creates Problem

At each rate of planting used, the per cent protein increased with increasing nitrogen whether the yield increased or not. In 1948, Earley obtained an increase in both per cent protein and yield from the important rates of planting through nitrogen fertilization. Under this condition of increasing yield, the yield and per cent protein are directly related.

The first increments of nitrogen added to the soil tend to increase the yield more than the grain protein while further increments tend mainly to increase the protein content.

The soil nutrient that is indispensable in the synthesis of all farm crop proteins is nitrogen. On too many of our farms in the corn belt inadequate soil nitrogen not only is responsible for low protein corn, but also is an important factor in limiting the total yield.

Therefore, anyone may view with concern the gradually declining protein content in the corn crop resulting from inadequate supplies of soil nitrogen which is rapidly becoming our major soil fertility problem.

Hybrids producing grain markedly higher in protein content also require a higher nitrogen level in the plants throughout the season. Thus the higher protein hybrids studied in this investigation required a greater supply of soil nitrogen and yielded less grain than the hybrids that farmers are now using.

Higher protein hybrids is not the answer to the problem of low protein corn which results from pushing the yielding capacity of the soil, through thicker rates of planting, to the limit of the soil nitrogen supply. The answer to this problem is more soil nitrogen.

The data from the Morrow Plots as well as the experiments conducted by Earley indicated that the protein concentration of the grain affords an index of the nitrogen status of the vegetative plant, which in turn is partly responsible for the yields obtained. Protein values below 9.5 per cent indicate insufficient soil nitrogen for maximum yield of grain.

It is concluded from this experiment that declining grain protein means declining yield of corn, and that the problem of declining grain protein is of great concern to all of us rather than to any special group. Furthermore, when yields are increased through better farming methods the per cent protein in the grain will also be increased.

While both yield and per cent protein of corn respond favorably to commercial nitrogen applications, it is fully realized that the future of our corn belt agriculture depends to a very large extent upon the organic matter in the soil. Therefore, the legume program will also continue to demand our most serious consideration.

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J. B. Christie, M. D.
Edward C. Albers, M. D.
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E. P. Cheydeleur, M. D.
Bruce F. Grotts, M. D.
Phil A. Daly, M. D.

New Crops Hard to Harvest

By William Young Jr.

Once again, as in many previous years, the experiment station at the University of Illinois is hard at work experimenting with new crops. According to Mr. R. O. Weibel, one of the head men in the new crops department, the problem this year is harvesting the crops they have succeeded in producing. One crop they are particularly concerned with is the sunflower. According to Mr. Weibel there are several large implement companies cooperating with the University at this time in an effort to find suitable harvesting methods.

Hand Cutting Still Used

The hand cutting method, such as used by the sunflower growers in Miamilton, Illinois, has proven quite successful, but has entailed more work as well as being time consuming. Experiments with



Work is being done to convert the combine for sunflower harvest

combine harvesting are now being conducted, but there is still a large percentage of the crop left on the field. Mr. Weibel explains that this is due to the failure of the machine in being able to harvest both the short stemmed or lodged plants and the tall, upright plants.

Cross-breeding work is being experimented with to eliminate this un conformity of plant size and to cut down the lodging. The regional laboratory at Ames, Iowa, recently sent sixty introductions of sunflower seed to the Illinois station for experimental work.

Castor Bean Troubles

Another crop that has produced a harvesting problem is the castor bean. The Baker Castor Oil company has done considerable work with this crop and is cooperating now in an effort to solve the harvesting problem. Mr. Weibel explains that the castor bean plant must be killed by frost before it can be harvested. Also the hull of the bean must be sufficiently dry to allow for its removal at harvesting. This means that the crop is then subject to severe shattering and results in a large loss of the beans before or during combining. One attempt at remediating this condition was tried last year at Edwardsville. The seed was harvested before it had completely died and then was processed in a seed huller and drier before being stored. The results were successful, but were not economical due to the extra handling involved. Other experiments with this crop are being run at the California and Oklahoma stations.

Other New Crops

Another new crop being experimented with is sesame, a plant which is grown for the seed which yields an edible oil. Its main disadvantages are a tendency to shatter and slow maturity.

Perilla also shatters badly, although its seed yields an oil useful in industrial products such as paints and metals.

Guar, a legume, is grown for its seed. The seed in this case however is ground into a flour and is used in the paper industry for bonding and as a stabilizer in the ice cream industry. It is a long season plant and to date its yields are rather low.

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B. C. Payne, M. D.
Iring Weissman, M. D.

IT HAPPENED ON SOUTH CAMPUS

By Lorna Springer and Jim McCurdy

Approximately 300 agriculture students attended the Thirteenth annual All Ag field day activities at the south quadrangle Friday, September 30.

At four bells the freshmen and seniors teamed up against the sophomores and juniors for a softball game. The feud continued and the ball and bat were exchanged for a sturdy rope (it looked sturdy!). But all that muscle bound manpower was too much for any rope, and both teams experienced a sudden jolt which ended in a tie of surprised "Aggies" holding frayed ends.

The Home Ecers then displayed their pulling power as the seniors and freshmen won over the juniors and sophomores. Other events of the afternoon were: volleyball, horseshoes, a three-legged race for couples, a gals' barrel-rolling contest, and a couple tomato-toss, which the ladies enjoyed immensely.

The hungry "Ags" and "Sis Ags" then rushed to the agricultural engineering lab to file past the food tables which were heavily laden with sack lunches, milk, and ice cream. The bonfire south of the lab was a favorite spot. After eating the lunches, everyone enjoyed toasting their toes and singing folk songs.

Windy Professors

During the program at the stock pavilion, Humphrey, the clown, recruited contestants from the audience. One of the most humorous acts was the balloon-

blowing contest. Dean Hudeson, C. D. Smith, Karl Gardner, Sleeter Bull, Fred Francis, Norman Krausz, and P. E. Johnson participated.

Professor Francis proved to be the "windiest."

An egg-throwing contest thrilled everyone, including the egg-spattered contestants. With folded newspapers, ten girls whacked away at infuriated balloons tied to each girl's back. Results: no casualties, but a "banging" good time. The boys tried a different way of beating one another. In groups of two, they sat on a metal pipe suspended above the ground and forced each other off the pipe with straw-filled gunny sacks.

Pumpkin Crowns

The highlight of the evening was the crowning of the queen and king by Professor Bull. The crowns were made of golden yellow pumpkins. Competition for the king was keen, but Ralph Ritter gulped down more watermelon in one minute than any of his competitors. The queen, Mary Rich, was chosen according to her ability to ride horseback and the audience applause.

"Pure Corn" was the theme of the dance held in the appropriately decorated ag engineering building. The music of Jean Trimble's orchestra brought eight hours of stimulating festivities of All Ag field day to a very successful end.

Twenty-Four Students Receive Scholarships In Ag for '49-'50

Twenty-four students in the College of Agriculture have received monetary gifts to date through scholarship programs for agriculture students for 1949-50. These scholarships were administered through the office of the Dean of the College of Agriculture.

The Kroger Company has awarded six scholarships of \$200 each. They were awarded to three home economics freshman students and to three agriculture freshmen. These awards were based on high school scholastic achievements, on leadership qualities demonstrated in school, church and youth organizations, and on financial need. These recipients are as follows:

Shirley June Erickson, Altona; Winona J. LeSure, Mt. Carmel; Mary Joan Baird, Williamsfield; Richard Allen Ewbank, Marshall; Harry Russel Pikaar, Chicago; and Norman James Hughes, Huntley.

Seventeen freshman and sophomore students received scholarships from the Sears Roebuck Foundation ranging in value from \$100 to \$200 each. Scholarships are awarded for a one-year period but may in exceptionally meritorious cases be extended into the sophomore year, as has been the case with six of these winners this year. Scholarship, leadership activities, farm background, and financial need form the basis for these awards.

Winners are as follows:

Sophomores—Joseph C. Headley, La Harpe; Donald R. Wilkin, Danforth; Charles E. Orcutt, Watseka; Donald Eldon Johnson, Smithshire; Eugene William Merkle, Danforth; Samuel Joseph Buck Jr., Pana.

Freshmen—George Lewis, Hersman; Gordon Eugene Beck, Potomac; John Henry Burkhardt, Mazon; William F. Moody, Princeville; Richard Wayne Kemp, Wenona; Peter Allen Peterson, Elburn; Clarence August Schlueter, Belleville; Norman Ray Madison, Mazon; Francis Edwin Walker, Mazon; Charles Lee Joley, Pana; and Cletus Earl Schertz, Benson.

The Chicago Farmers, an organization of business and professional men owning farms in the Chicago area, sponsored its second annual award this year. This award, \$500 in value, is presented to a senior agricultural student. It is based on scholarship, leadership, and financial need. Orville Sauder is this year's recipient.

In 1848, 22 per cent of our total population was working in the field of agriculture, but in 1948 only 7 per cent were engaged in the labor force that produced the year's crops.



Top left: Sleeter Bull crowns Mary Rich, Ag Queen, with a pumpkin crown;
Top right, "Chow down;" Lower left, Men at Work; Lower right, Big wind on South Campus

New Fuel Cuts Tractor Costs

By Burrell Shull

The use of liquefied petroleum gases, particularly propane and butane, as fuels for internal combustion engines is by no means a new development. Early development in its use was limited to stationary engines but in recent years its use has been extended to the farms throughout the country as a fuel for farm tractors.

Propane and butane, the principal liquefied petroleum gases commercially available, are obtained from two principal sources, from natural gas in the production of gasoline and from refinery gases formed in the refining of petroleum. Products from the latter source also contain certain amounts of propylene and butylene.

These gases are members of the same families of hydrocarbons which predominate in gasoline, but differ in that they are gases under standard conditions of temperature and pressure and can be liquefied under pressure to concentrate their thermal value for economical transportation and storage. The gas is metered in the liquid form and is expanded into a dry gas at the engine and enters the carburetor as such.

Propane Most Popular

It has been demonstrated on numerous occasions that propane has a number of potential advantages over regular liquid type of fuels. These advantages arise first from a higher compression ratio which is necessary in order to burn propane successfully and secondly, from the completely gaseous form in which it is fed into the carburetor. This results in a thorough mixing of gas and air and an even distribution of the mixture in the engine cylinders.

A true gas such as propane burns completely, leaving no "lacquer" deposits. Since it is a dry gas, there is no liquid to "wash" the lubricating oil from the cylinder walls and piston rings. Oil dilu-



A larger round tank replaces the conventional gasoline tank in the propane reconversion

tion cannot occur and oil consumption is greatly reduced. This all leads to less wear on the bearings, rings, and cylinder walls and more hours of life to the motor.

Propane's high octane rating of 125 permits a higher compression ratio which, accompanied with the slower burning in the cylinder, makes the engine operate like a steam engine with a positive, sustained stroke. This means more power, a heavier load, or the same load one gear faster than with ordinary liquid type fuels.

Easier Starting

When most laymen see the large propane tanks on tractors today they are inclined to consider this gas in the same class as diesel fuel in regards to starting habits. This is entirely erroneous and it should be remembered that propane is a gas and not a liquid and that quick starting, without choking, is realized because there is always sufficient dry gas to warm up the motor.

Some tractor companies, Minneapolis-Moline in particular, are now manufacturing tractors equipped to use propane or a mixture of propane and butane as their fuel. Farmers do not, however, have to buy a new tractor in order to receive the benefits of using this gas be-

cause conversion units are now available to convert your present tractor from gasoline to propane.

The cost of converting over to propane is at present the limiting factor, especially for the small operator. In order to burn propane the tractor needs to be equipped with high compression pistons and head. Tractors that have been high compressioned to burn gasoline will meet this requirement satisfactorily. The tractor must then be equipped with a propane type carburetor and gas tank. The cost of these tractor installations at the present time is around \$200.

In addition to the expense of tractor installation the farmer must purchase a storage tank. These tanks cost about \$275 for the 500 gallon tank or \$450 for a 1,000 gallon tank. If the farmer is using propane as fuel in the home or for cooking purposes, he will already have a storage tank and would not have to charge this cost to his tractor conversion.

Fuel Bills Cut

Although the expense of changing over to propane seems high at first, it must be remembered that propane is much cheaper per gallon than is gasoline. At the present time propane costs ten cents per gallon delivered to the farm. Many of the larger operators in the state are finding it a very economical tractor fuel. One of these farmers is Sharon Crouse of Willow Hill who is pictured with his tractor at the beginning of this article. Another example with which the writer is familiar is that of Arlin Hetzer of the Island Grove community. Mr. Hetzer's fuel bill was reduced from \$600 to \$300 for the year after he converted his tractor to propane.

From the experiences of those who have tried propane it seems that it is definitely finding a place as a tractor fuel. It offers a promise of relief for those farmers with large fuel bills and maintenance expenses. It seems to be ideally suited for farmers who are using it already as a home fuel with storage tanks available and whose operations are large enough for the savings over the cost of gasoline to offset the cost of installation within a period of one or two years.



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FOLLETT'S COLLEGE BOOK STORE

Around the Corner on Green Street



New dining hall-kitchen at West Franfort 4-H Camp

"Making the Best Better" with 4-H Camps

By Elroy Golden

Give a group of farm boys and girls a ball and bat and they'll find a place to get a good game underway. Likewise, initiate a sound camping program and these boys and girls will give the added life and spark that is needed to make camping take on meaning.

Illinois has 50,000 4-H club members. They are all potential campers and can be expected to participate if facilities and camping areas are developed to a great enough extent. Their lives will be richer because of their experience and their 4-H club program, as well as their county, will benefit.

For a long time Illinois club members have been known for the work they do on their projects. Many members found that their 4-H program consisted of projects, meetings, and shows. To make this program more balanced, the Illinois 4-H Camp Training Program has developed from a desire by 4-H club members in this state.

The following summary explains what has been accomplished in this Illinois 4-H Camp Training Program.

Boost to Camping Program

"The Illinois camping program got a big boost right at the start with the gift in 1946 by Robert Allerton of 250 acres of rolling land near Monticello, Piatt county, from his large holdings of land along the Sangamon river. Mr. Allerton was prompted to make this gift when he learned of the plan for a state 4-H Memorial Camp to be located somewhere in central Illinois. The first camping in this area was in the summer of 1948 around the shores of the small lake."

With the Memorial Camp at Monticello as a nucleus, the state was divided into four camping districts to complete the picture for the Illinois 4-H Camp Training Program.

"Camp Shaw-waw-nas-see, a beautiful 75-acre tract along Rock Creek in Kankakee county, was selected as the northern district site. The land was given to the

Shaw-waw-nas-see Camp Association by the power and light companies serving northern Illinois. It is the first camp to be developed under Extension Service ownership, and camping operations have been underway in that area since the summer of 1946.

A 100-acre site on West Frankfort city lake in Franklin county was obtained in November, 1947, to be developed as the camp for the Southern Illinois camping district serving 29 counties in that area. For the western district camp, a 70-acre site has been leased on the shores of Lake Jacksonville in Morgan county. Camping operations got underway at these camps this past summer.

Construction also started this summer at all four campsites on permanent, combination kitchen-dining halls. Native materials were used as far as possible. Plans called for the buildings to be winterized for year-around use by adults as well as young people. Work also started on a new 14-acre lake at Memorial Camp."

Camp Development Main Concern

The Illinois 4-H Camp Training Program is at present mainly concerned with camp development both as to size and facilities. Water and sewage systems are needed, recreation facilities are needed, swimming pools, boats, and ball diamonds are needed. In fact a careful study has revealed that at least one million dollars will be required to develop the four areas.

Already Illinois 4-H members have raised more than \$200,000 for the purpose of camp development. During this past National 4-H Achievement Week, Illinois members have further concentrated their efforts to make their dreams come true. This fund raising campaign began in 1948 with the idea that Illinois members would raise \$500,000 in 10 years. At the present rate, 4-H boys and girls are likely to realize this amount in six more years.

Spotlight on . . . RURAL YOUTH

On October first the ninth annual Rural Youth Fall Conference was held at the Illini Union here on campus. The purpose of the meeting was to aid Illinois Rural Youthers in planning better educational programs for the future. Miss Cloreta Walker opened the conference by introducing Mrs. Kathryn Burns who presented some help on developing interesting educational material. She also gave a brief history of Rural Youth.

1935-1949

Rural Youth is a comparatively young organization, having been recognized by the state in 1935. She puts Rural Youth ahead of adult extension because "rural youth realize that one must do for himself—not something that someone else does for him..

There are about 10,000 young folks in Rural Youth clubs in some 90 counties of Illinois. This group includes those from the age of 17 years until the time they are married. Many counties have a young married group, also.

Following Mrs. Burns' brief but interesting talk, a discussion "Marriage as a Human Relationship," was led by Miss Briggs, extension instructor in child development and parent education. Miss Briggs was aided by a recording made by Dr. Kirkendall during Farm and Home Week.

The assembly was then divided into small groups. Each person discussed the features he would like included in the educational program and different methods by which the material could be presented. Some of the methods mentioned were movies, classes, book reviews, demonstrations, tours, talks, speakers, group discussions, and the Flannelgraph.

Germany Today

Highlight of the conference was Dean R. R. Hudelson's luncheon address on his recent European tour, "If You Were in Germany today."

"Developing the Program" was the main topic for group discussion in the afternoon. The program committee reported on "How the Educational Feature is Carried Out." Reports were given by delegates from Champaign and Vermilion counties.

For the recreation committee, Martha Carlisle, extension recreation specialist, told how recreation is fitted into the program. The place of festival activities was the topic of the report given by Jim Van Slyke. A Stephenson county Rural Youther explained the place of community service as a part of the total program.

Recreation for the 150 Rural Youthers gave the final touch to the first statewide get-together since the war.

Alumni News . . .

Paul Ferree Writes from South of the Border

Ciudad Valles, S. L. P.,
September 9, 1949

Dear AGRICULTURIST Readers:

During my years at the University of Illinois I had quite an interest in foreign agriculture and wondered what opportunities Mexico and other Latin countries might hold for the future. To find the answer, to learn Spanish, and to try to understand Latin people I came to Mexico soon after graduating in 1948. For the last year I have been under appointment of the U.S.D.A. working on the problem of the Citrus Black Fly.

This insect, known here as the "Mosca Prieta," is causing much concern to California and the Rio Grande Valley of Texas, for here in Mexico it has nearly ruined the citrus production.

Although the work has taken me to many parts of the Republic, the greater part of my time has been spent here in a tropical agricultural section of Central Mexico. Here besides being an entomologist, I have also become known as the Ambassador of Ciudad Valles, through which unofficial capacity I have met innumerable Americans. I have some call nearly every day for my after-hour free guide and translation service.

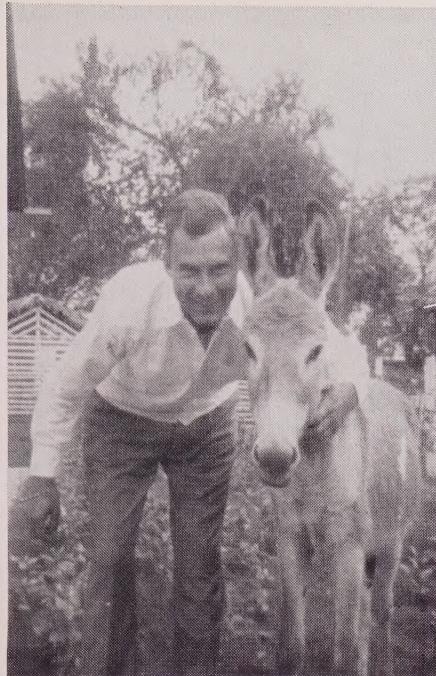
An immensely interesting area, this Huasteca Indian region offers good swimming, hunting, fishing, and ranch outings. However, for me, the most interesting fact is that I can live comfortably for a dollar a day.

Very high temperatures, service delays, and some dangers provide disadvantages so that all is not a bed of roses. Nevertheless, it has been an extremely interesting year for me, and I have learned a great deal due to the wide contrasts in crops and methods of farming.

I always enjoy working with people who are honest, friendly, and polite, no matter what their race. I even envy the Mexicans' easy going manner, total disregard for future security, religious adherence to the siesta period, and ability to use the least excuse to start a fiesta. Their life is often very hard, but worries are few, and nature has made their needs light.

Actually Mexico has many agricultural problems. The foot and mouth disease and citrus black fly are only two. Draught, erosion, worn out soil, poor crop varieties, yes, even political factors, and the difficulty to break from outdated traditions make the situation hard to improve.

However, the possibilities are almost endless, and I think some day Mexico will harvest many times their present production. The present education policy is trying to prepare the people for that.



Paul and a friend

Should any of you want to see Mexico do not be discouraged. The lower prices here and very favorable exchange of 8.65 pesos to the dollar make it much cheaper to travel here than in the States. Highways and accommodations are good, gasoline is cheap, and you will find a lot of people able to speak your language. Also when you arrive in that fresh clear air of the Mexican plateau you will wonder who ever invented Illinois weather.

I'll be seeing you,
Paul Ferree.

Each man-hour of farm labor now means two-fifths more total production than it did before World War II.

New Laboratory . . .

(Continued from Page 6)

ience is a typewriter desk, this shelf pulls out and up. In one simple motion the mixer is brought out from the cupboard and put at the correct height. Another concealed space saver is a linoleum-covered shelf that pulls out from under the counter to serve as extra working space or as a table for two.

The reactions of the students and instructors to the new laboratory have been gratifying. They agree that classes are more interesting and applicable to everyday living when taught under such desirable conditions.

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Veterinary Grant . . .

(Continued from Page 5)

Robert Graham, dean of the College of Veterinary Medicine, said that a member of the present college staff would be assigned to the research project. Under the cooperative research program, part of this staff member's time will be devoted to swine disease research and an appropriate share of his salary will be paid from the \$5,000 grant which also will be used for other costs of the project.

Prevention is First Plan

For the preventive, or experimental vaccine phase, the program involves the

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use of an experimental vaccine incapable of producing the disease developed in veterinary research at the Illinois Agriculture Experiment station. The vaccine is being used on privately owned herds, either purebred or commercial.

All animals are to be tested, before vaccination, to determine their freedom from disease.

Two or more blood tests are made following vaccination. The results of these tests, in conjunction with farrowing records, are used to appraise the value of the vaccine. In each case a small number of unvaccinated gilts are left in the herd as a check group.

To Herd Owners Without Cost

The experimental vaccine, an extension veterinarian of the college, and a local veterinarian are furnished to work without cost with herd owners.

The other phase of the swine brucellosis attack, experimental therapy, employs a variety of synthetic chemicals or antibiotics for therapeutic trials. These agents employed in human brucellosis, undulant fever, are to be used and studied wherever possible. This study also authorized the feeding or injection of a nontoxic therapeutic chemical or antibiotic into brucellosis-reacting swine.

Pre-treatment and post-treatment blood tests, together with farrowing records are used in appraising results of the therapy. Chemicals and antibiotics used are supplied without cost to the owner of the swine.

The special service to herd owners include inspection of farm and herd, laboratory examination of typically affected animals, special studies in the laboratory to establish the nature and character of the malady, and experimental trials of therapeutic agents where no treatment is available.

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**Pick and Shell Your
Corn in One Operation**

By Al Lundgren

Recently one of the major implement companies developed a picker-sheller. A picker-sheller owned by a Bondville farmer has been on display in the agricultural engineering building here at the University during this past year. One feature of the machine is a detachable sheller unit with an ear corn elevator that can be put in its place. The picker itself is a regular two-row picker. It can be pulled with a two-bottom tractor and is driven by the tractor power-take-off.

The cost of operating this machine is just slightly more than for picking alone. Ten to fifteen acres per day can be picked and shelled, depending on the yield of the corn. The sheller can easily handle up to eighty bushels per acre. The picker-sheller method of harvesting shows a lower unit cost than other methods for areas above forty-five acres. This advantage can be attributed to the saving in shelling expense, decreased field time, smaller power requirements, and decreased handling costs.

The machine works best when the moisture content is between ten and twenty per cent. Picking is usually delayed two or three weeks after normal picking time, depending on the weather, to allow the corn to dry down to this range. This machine adapts itself very well to farmers who have a great deal of corn with no storage facilities. When the moisture problem is solved, it may be possible to improve the quality in storage and to keep the corn on the farm.

Brings Profit to Farmer

In an experiment at the University with the original machine, samples were collected from the plot, cob rack, and bin in such a manner that the picking losses, shelling losses, and yield could be determined. Picking loss consisted of ears lost by the snapping rolls and corn shelled by the snapping rolls. Shelling loss consisted of corn remaining on the cobs and shelled corn which was lost from the cleaning sieve. The total machine losses ranged from 1.12 to 6.37 bushels per acre. The results show about 87 per cent of the loss occurs in picking. The remaining 13 per cent occurs in shelling. The cobs are broken in small pieces and scattered over the ground so the danger of corn borer living in the trash is small.

Although the higher moisture content lowers the market grade of the field shelled corn, it is concluded that by combining the picking and shelling operations, the total cost is lowered and more profit is realized.

DEPENDABILITY

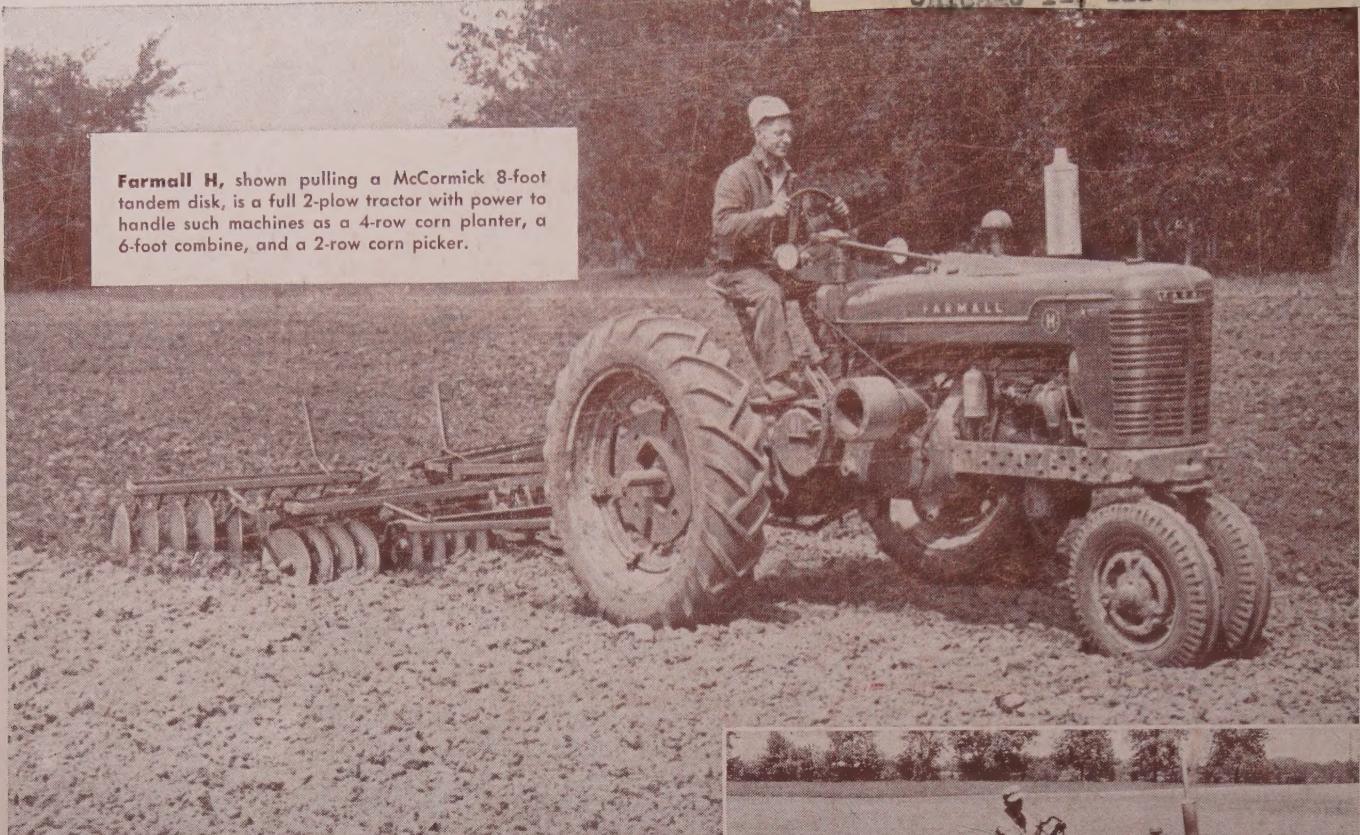
As a successful businessman, you know that dependability is an infallible measure of men and machines . . . a quality that determines the acceptance in a community for the businessman and the equipment he sells and services.

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Farmall H, shown pulling a McCormick 8-foot tandem disk, is a full 2-plow tractor with power to handle such machines as a 4-row corn planter, a 6-foot combine, and a 2-row corn picker.

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